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910 West Avenue, Austin, Texas 78701 USA

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IMPROVEMENTS FOR BAGS OR SIMILAR RECEPTACLE USED TO CONTAIN HEAT
GENERATING MATERIALS

Inventor:	Otto Erich Pollmann, residing in Germany
Representative:	H. Boctteher, Junior

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The invention concerns bags or similar containers used to contain chemical products which release heat when water is added to them.

It has been proposed to place products of this type in a porous bag which is surrounded by a protecting envelope which has holes to allow the entry of air.

Some drawbacks are inherent in devices of this type. It is expensive and not practical to enclose the material in two bags or envelopes. If the product, nevertheless, must be contained in a single bag, the effect of air has to be taken into consideration. On the one hand, the air contains a certain quantity of heat which accelerates the operation of heat emission by the heat-emitting material, and on the other hand, the development of heat in a place where there is no air at all is absolutely impossible, probably because a certain quantity of air is required for the oxidation.

One condition of this phenomenon thus is the fact that the envelope must in any case comprise air holes, but on the other hand, there is always a risk of infiltration through said holes of the powdered material used as a heat source.

The invention eliminates these difficulties and it consists in enclosing the heat-generating material in a waterproof bag or envelope which has holes which, in this case, however, are covered by an air-permeable substance, preventing the material from filtering through the holes of said bag.

If one wants the bag to serve practical uses, one must consider another condition, namely that the operation of emission of heat by the material must be interrupted for a certain time period to allow the recovery of said material.

It is also undesirable for an emission to occur when the envelope is not in use or when it is sent by mail or by another shipping method.

Therefore, it has been proposed to use, in addition to the holes, devices to make them airproof.

It is preferred for this stoppering of the holes to make them thus airproof to be such that it is only effective when necessary, so that said holes can be opened again when necessary.

The drawing in the appendix, which is given as an example, shows an embodiment of the invention.

Figures 1 and 2 are a front view and a cross-sectional view along line A-B of the bag according to the invention, which has been constructed according to the above-mentioned embodiment.

In the example of the drawing shown in Figure 1, the bag is rectangular. It comprises, as can be seen in Figure 2, two parts 1 and 2 which are glued to each other along the edges 3. Rubber, rubber-coated paper, oiled paper or another substance can be used. The heat-generating material 5 is placed between the two partial envelopes 1 and 2. The wall 1 or the wall 2 or both can comprise holes. These holes are arranged evenly so that they are completely covered and closed to be airproof when the rubber-coated band 6 has been unwound. In the two figures, the band 6 is half-wound. A small rod 7, made of wood, metal or another appropriate material, forms the axle of the roll 8.

One can use the holes 4 to cause water to penetrate, and also as air inlet openings. The holes 4 have been covered with a band 9 made of a porous substance which prevents the material from exiting and, simultaneously, allows the passage of the outside air through said holes.

When one sends the envelope by mail or another shipping method, or when it is stored, the closing band is completely unwound, whereas, on the other hand, said band is wound when the envelope is in the state of use.

In the example of the figures, the bag is ready to be shipped and no packaging is necessary. It can also be kept in storage as is.

The heating bag can be provided, at an appropriate point, with an inlet device which allows it to be filled or emptied as desired. Figure 1 shows the filling device 10 in the open state, whereas Figure 2 shows it in the closed state, and arranged under the band 11.

If one wants to open the inlet device, shown in Figure 2, one pulls the band 11 from below and separates it. When said device is open, one can fill or empty the bag as desired. When it is disengaged, as shown in Figure 1, it automatically folds or it is wound, Figure 2. The heating bag is thus closed in such a manner that no loss of content can occur. When the filling device is pushed under the band 11, as shown in Figure 2, it is in a protected and safe position.

Since, in this case, the material is enclosed in a single bag, and not in two bags or envelopes, as in the other known devices, the invention results in a considerable saving in the cost of the apparatus.

The bags or envelopes of this type can be employed for numerous uses. The most important examples are the following:

1. The bag can serve as a cushion to heat the body of a human or an animal, and it can also be introduced into ligatures or bandages;
2. The bag can be shaped like an internal sole of a shoe or boot, and it can be used as such a sole;
3. Clothes, stockings, underwear and similar articles can be provided with a lining of the type of the above bag or envelope;
4. One can give cushions, covers, mattresses, rugs, chair seats and similar objects the shape of said envelope;
5. Containers whose content must be kept hot (cooking utensils, containers for drinks) can be arranged in an envelope which has been constructed according to the invention;
6. The bag or envelope can be constructed in the form of a curtain for radiators of automobiles. If it is formed in this manner, it is removable and consequently it can be wound up and used as a heater for the occupants' feet inside the vehicle, as it is moving.

The airtight closing device can be constructed, if necessary, in another manner, for example, in the form of a rotating disk which uncovers the holes when the holes of said disk coincide with those of the envelope.

Summary

The invention concerns the following devices:

1. A bag, envelope or similar container used to contain heat-generating materials, which is formed in a water-impermeable manner and provided with one or more air holes, where said bag is combined with devices which, while allowing air to enter into them, prevent the material enclosed in them from passing through said hole(s) out of the bag or envelope;

2. The air hole(s) is (are) covered by a material which is permeable to air but impermeable to the material contained inside the envelope;
3. Devices allow the hermetic seal of the air hole(s);
4. The bag or the envelope is provided at an appropriate point with a filling tube which, folded or wound, can be introduced under a support band which is fixed to the envelope;
5. This filling tube is arranged so that it automatically folds or is automatically wound, thus closing the filling opening.

